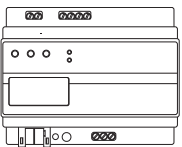


KNX DALI gateway REG-K/1/16(64)/64

Operating instructions



Art. no. MTN680191

For your safety

DANGER
Risk of fatal injury due to electrical current
All work on the device must only be carried out by trained and skilled electricians. Observe the country-specific regulations as well as the valid KNX guidelines.

Getting to know the Gateway

The KNX DALI gateway REG-K/1/16(64)/64 (referred to below as the **gateway**) connects the cross-function KNX bus with the DALI bus designed exclusively for lighting control. Luminaires with cost-effective digital DALI electronic ballasts can therefore be integrated into a KNX complete system in the form of a subsystem and operated by a wide range of available KNX devices.

The gateway serves as the DALI master and power supply for the connected electronic ballasts. Up to a maximum of 64 electronic ballasts in a total of 16 groups can be switched, dimmed or set to a defined value. The current light value or the error status of each group (luminaire or electronic ballast errors within the group) can be made available for a visualisation via KNX. In addition, the 64 electronic ballasts can be individually activated via KNX or via KNX group addresses. In the case of individual activation, one programmable object is available per electronic ballast.

One error status is available for each electronic ballast. Lamps and electronic ballast errors can thus be precisely located. Total activation of all connected electronic ballasts via broadcast (without requiring DALI commissioning) can also be carried out via three objects. Additionally, up to 16 lightscenes can be programmed and called up from the individual groups. Scene activation is effected via a 1-byte object.

DALI commissioning and configuration can be performed as follows:

- via the device
- via a software tool (free of charge)
- via the integrated web server
- via a portable web panel or a PDA
- via two binary inputs, e.g. for connecting push-buttons to the device (building site operation).

It is installed on a DIN-rail TH 35 according to EN 60715, with the bus connection made via a bus connecting terminal.

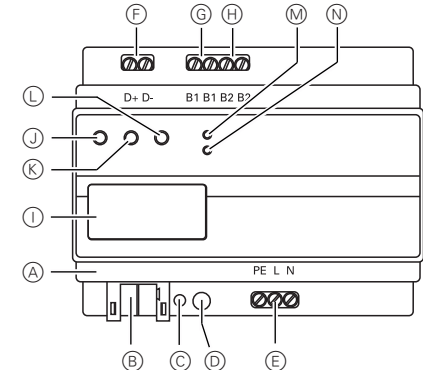
A data rail is not required.

Network, DALI and push-button lines are connected using screw terminals on the device.

Connections, displays and operating elements

The appliance connections and the learning button and programming LED elements required for KNX commissioning can only be accessed in the distribution board when the cover is removed.

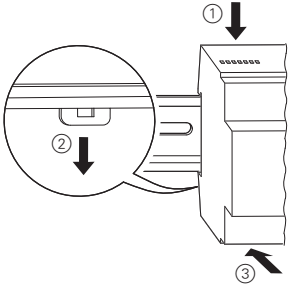
The keys required for DALI commissioning and parameterisation (SCROLL, Prg/Set, ESC) can only be operated when the distribution board's cover is closed. Similarly, the 2-row display and the control LEDs (PWR and ERR) can only be seen when the distribution board's cover is closed.



- A Ethernet connection (RJ-45 socket)
- B KNX bus terminal
- C Programming LED
- D Programming button
- E Mains connection
- F DALI output terminal
- G Connection for 1st floating key
- H Connection for 2nd floating key
- I Display
- J SCROLL key
- K Prg/Set key
- L ESC key
- M PWR LED (green): Operating display
- N ERR LED (red): Error display

Mounting the Gateway

- Insert the gateway into the DIN rail from above and slide downwards. Press from underneath and hook onto the rail



- Connect the connecting cable for the DALI bus to the upper left terminal.

The DALI control cables can be guided into a 5-core cable together with the power line (basic insulation sufficient), according to IEC90929. Clear labelling must be guaranteed, however. A maximum line length of 300 m for the entire DALI installation of a segment must not be exceeded (recommended cross-section 1.5mm²).

After connecting the DALI cable, the two external push-buttons can be fitted according to the connection diagram, if necessary. The push-button inputs are passive, which means that an auxiliary voltage of AC 8–26 V or DC 9–32 V is required.

- Connect the mains voltage (according to the connection order shown on the housing) to the lower right terminal.

To connect the KNX cable, a standard bus terminal is plugged into the corresponding terminal receiver on the device. Double basic insulation between the KNX installation and the mains voltage must be ensured. For this purpose, the cores of the KNX cable must additionally be insulated with the enclosed shrink hose. When connection is complete and the supply voltage is activated, the product designation and firmware version will be shown in the display.

Status LED

PWR LED flashes	Device is ready for operation
ERR LED lights up	Commissioning without KNX
ERR LED lights up despite KNX voltage	Possible short circuit within the DALI segment. Check the DALI segment's wiring!

i The pin assignment shown on the housing must be observed!

Operating and menue structure

The connected DALI segment can be commissioned and DALI parameters can be set and altered entirely using the three operator buttons (SCROLL, Set/PRG, ESC) and the 2x12 row display on the front face of the device.

The operation concept is menu-based. Up to two lower levels can be selected for each menu item. The respective menu item is shown in the display. Navigation within the menu is as follows:

SCROLL key: Short push-button action activates the next menu item within a level.
Prg/Set key: Short push-button action activates the respective sub-level.
ESC key: Short push-button action to leave the selected level and return to the level above.

Main menu - level 1

The main menu (level 1) has the following structure:

DALI CONTROL	Displays the product designation and SC64IP,V.2.0 firmware version. Display language setting.
IP ADDRESS	Displays the IP address set in the ETS or assigned by the DHCP server.
NEW INSTALLATION	Resets the connected DALI devices and starts the automatic search run for electronic ballasts.
REINSTALLATION	Starts the automatic search run and configuration adjustment, where required.
GROUP ASSIGNMENT	Assignment of the electronic ballasts found to desired DALI groups.
GROUP PARAMETERS	Setting/modifying the parameters of the individual groups.
SCENE ASSIGNMENT	Assignment of DALI scenes to the desired associated groups.
GROUP TEST	Switching the entire installation (broadcast) and individual channels for test purposes.
SCENE TEST	Retrieves the individual programmed scenes for test purposes.
SYSTEM TEST	Present system errors can be retrieved individually.
FUNCTION INPUT B1	Setting the function of the floating push-button input B1.
FUNCTION INPUT B2	Setting the function of the floating push-button input B2.

If a process is activated in a lower level or if a parameter is altered, the programming mode must be switched to at the selection position.

To do this, actuate the Prg/Set button for longer than 2s.. If the respective function is in programming mode, a -> symbol appears in the display.

If the programming mode is active, a possible parameter or setting can be changed using the SCROLL button. Briefly pressing the Prg/Set button again completes the process. The set parameter is saved or the corresponding process is activated.

DALI CONTROL submenu - level 2

- Press the Prg/Set key: Switches from the DALI CONTROL main menu to the LANGUAGE submenu.

LANGUAGE
GERMAN
Display: current display language.
Long actuation of the Prg/Set key: Switches to the programming mode. Language selection (GERMAN, ENGLISH, FRENCH, SPANISH, SWEDISH) using the SCROLL button.

- Press the Prg/Set key: set parameterisation is confirmed and saved and the display works in the corresponding language.

IP ADDRESS submenu - level 2

- Press the Prg/Set key: Switches from the IP ADDRESS main menu to the submenu.

IP: 192.168.004.101
Displays the IP address currently set in the ETS or assigned by a DHCP server in the IP network. The setting cannot be changed on the device. Setting is performed via the ETS or via DHCP.

REINSTALLATION submenu - level 2

- Press the Prg/Set key: Switches from the INSTALLATION main menu to the SEARCH EBs submenu via PROG MODE.

SEARCH EBs via PROG MODE	Long actuation of the Prg/Set key: Switches to the programming mode. Then press the Prg/Set key briefly: Starts the initialisation and search process. All of the electronic ballasts connected to the DALI segment are automatically reset and any previously set parameters/group assignments are deleted. The connected EBs are then searched for via their randomly generated long address and automatically recognised in ascending order. The search process lasts several minutes (depending on the number of connected EBs).
FOUND EBs: 47	After the search process is completed: Display: Number of EBs found.

- Press ESC key (or automatically after approx. 30 s): Returns to the level above.

REINSTALLATION submenu - level 2

- Press the Prg/Set key: Switches from the REINSTALLATION main menu to the SEARCH EBs submenu via PROG MODE.

SEARCH EBs via PROG MODE	Long actuation of the Prg/Set key: Switches to the programming mode. Briefly pressing the Prg/Set key: Starts the verification and search process. Connected EBs will be searched for via their long address and automatically compared with the previous configuration.
DELETED EBs: 3	Have been removed from the DALI segment EBs and the corresponding entries in the device will be automatically deleted. During the verification process: The number of deleted devices is displayed.
NEW EBs: 1	Searches for newly installed devices in the DALI segment. Recently added EBs are automatically reset (previously set parameters/group assignments are deleted). The search process lasts several minutes (depending on the number of connected EBs). During the search process: The number of newly found devices is displayed.

DEL./NEW EBs: 3/1	After the entire process has been completed (verification and search): The number of deleted and newly found EBs is displayed (deleted devices/new devices, from left to right).
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- Press ESC key (or automatically after approx. 30 s): Returns to the level above.

GROUP ASSIGNMENT submenu - level 2 and 3

- Press the Prg/Set key: Switches from the GROUP ASSIGNMENT main menu to the submenu. Within this menu, the individual EBs found during the search process can be assigned to the 16 DALI groups or existing assignments can be altered.

GROUP ASSIGNMENT	Retrieve the different EBs found using the SCROLL key.
EB no.:12 GROUP: --	First display row: Number of the selected EB. If an EB is selected, the connected luminaire flashes. This enables the programmer to determine which luminaire is assigned to the corresponding number.
EB no.: 12 GROUP: 1	Long actuation of the Prg/Set key: Switches to the programming mode. Retrieve the setting of the group which the EB is to be assigned to using the SCROLL button. Press the Prg/Set key: Setting is confirmed and saved. During new installation, this process must be performed once for all EBs found.

- Press ESC key (or automatically after approx. 30 s): Returns to the level above.

GROUP PARAMETER submenu - level 2 and 3

- Press the Prg/Set key: Switches from the GROUP PARAMETER main menu to the submenu. Within this menu, the individual parameters for each group can be set.

i In general, the group parameters should be set in the ETS during KNX commissioning. Setting directly on the devices serves only to quickly change individual parameters later. It should be noted that each ETS download overwrites settings which have been made on the device!

GROUP: 01 PARAMETER	Retrieve the individual groups using the SCROLL key. First display row: Number of the selected group. Long actuation of the Prg/Set key: Switches to the programming mode. The following parameters can be modified directly on the device:
GROUP: 12 ON VALUE: 100	Starting value: 0 to 100% in 5% step width
GROUP: 12 MIN DIM: 0	Minimum dimming value: 0 to 40% in 5% step width
GROUP: 12 MAX DIM: 100	Maximum dimming value: 50 to 100% in 5% step width
GROUP: 12 DIM TIME: 10 s	Dimming time for dimming from 0..100%: 5 s to 60 s

In programming mode, the selected parameter can be modified by briefly actuating the SCROLL key.

- Press the Prg/Set key: The set value is saved and the programming mode is automatically activated for the next parameter of this group (e.g. if only the maximum dimming value parameter is to be modified, the starting value and the minimum dimming value must be cycled through first (menu level 2)).
- Press ESC key (or automatically after approx. 30 s): Returns to the level above.

SCENE ASSIGNMENT submenu - level 2 and 3

- Press the Prg/Set key: Switches from the SCENE ASSIGNMENT main menu to the submenu. Within this menu, the respective DALI groups can be assigned to single or up to 16 possible scenes.

SCENE01 XXXX Retrieve the individual scenes using XXXXXXXXXXXX the SCROLL key. First display row:

Number of the selected scene.
After the scene number: Symbolic display of which of the groups 1 to 16 is assigned to the respective scene. "X": the corresponding group is assigned to the scene. "-": the group is not assigned. First display row: The four characters after the scene number correspond from left to right with the groups 1 to 4. The 12 characters in the second display row correspond from left in ascending order with groups 5 to 12.

SCENE03 ---- XXXX-----XX	Long actuation of the Prg/Set key: Switches to the programming mode. Flashing cursor on the first X = selected group 1. Brief actuation of the SCROLL button: Selects whether the corresponding group should be assigned to the selected scene (switches between X and - characters). Brief actuation of the Prg/Set key: Cursor (and possible setting) is moved to the next group. After cycling through all 16 groups: Setting is saved and taken into account during the next scene programming. Actuating the Prg/Set key automatically returns to the level above.
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- Press ESC key (or automatically after approx. 30 s): Returns to the level above. Any changes made will not be saved.

FUNCTION INPUT B1 submenu - level 2 and 3

- Press the Prg/Set key: Switches from the FUNCTION INPUT B1 main menu to the submenu. Within this menu, the function of the floating push-button connected to input B1 can be adjusted.

DIM TOGGLE INPUT B1 Retrieve the individual functions using the SCROLL key. First display row: Displays the selected function.

DIM TOGGLE CHAN- NEL:ALL	The following functions can be adjusted: ON: switch on by pushing button OFF: switch off by pushing button TOGGLE: toggle by pushing button DIM ON: brief push-button action = on long push-button action = dim with stop telegram DIM OFF: brief push-button action = off, long push-button action = dim with stop telegram DIM TOGGLE: brief push-button action = toggle, long push-button action = dimming with one button SCENE: Retrieve scene.
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DIM TOGGLE CHANNEL: 07 Long actuation of the Prg/Set key: Switches to the programming mode. Use the SCROLL key to select the channel or scene which the selected function is to be linked to.

- Press ESC key (or automatically after approx. 30 s): Returns to the level above.

① Press the Prg/Set key: Activates the submenu

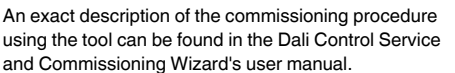
② Press ESC key (or automatically after approx. 30 s):
Returns to the level above.

After the wiring has been completed according to the connection diagram above, the DALI line can be commissioned. Commissioning can be carried out by an electrician independently of KNX commissioning. The red ERR LED lights up to signal an error, provided no KNX is connected. DALI commissioning can still be performed. For initial operation, the DALI line must first be searched for connected electronic ballasts. Searching is performed within the NEW INSTALLATION menu item (cf. Operation and menu structure). After all of the connected devices have been found (indicated by an (ESC) after the number of found devices shown in the display), this menu item can be exited. Subsequently, the devices found must be assigned to the individual DALI groups. Assignment is performed under the GROUP ASSIGNMENT menu item (cf. Operation and menu structure). Basic installation is completed when all electronic ballasts have been assigned to the respective desired groups.

If push-buttons are connected to the device's inputs, the push-button function can be adjusted in the FUNCTION INPUT B1 and B2 menu items and the inputs can be assigned to individual DALI groups. This means that DALI functions can be performed even if no KNX is available yet (building site operation). Of course, the inputs can also be used in normal operation to integrate cost-effective standard push-buttons or movement detectors into the system.

Commissioning of the DALI segment is complete when the steps described have been completed. KNX commissioning can then be carried out immediately or later with the ETS and the associated application program, as usual.

The DALI segment can also be commissioned using the free software tool "Dali Service and Commissioning Wizard". For this purpose, the device must already be connected to the KNX bus and a physical address must be assigned. Communication to the device is then effected via an interface connected to the KNX.



The diagram illustrates a DALI system architecture. On the left, a laptop and a desktop computer are shown. The laptop is connected wirelessly to a central KNX gateway. The desktop computer is connected to a KNX gateway. The KNX gateway is connected to a DALI interface unit. The DALI interface unit is connected to six DALI EVG (Electronic Voltage Generator) units. Each EVG unit is connected to a light fixture, represented by a circle with an 'X' inside.

After the network connection has been established, the commissioning website can be accessed via a web browser (e.g. Microsoft Internet Explorer or Mozilla Firefox). For this purpose, the IP address (URL) set in the ETS or automatically assigned by the DHCP server is simply called up in the browser.

Figure 1-1 shows the front panel of the MAC-8000. The panel includes a display showing the URL 'http://192.168.1.80/' and a status bar at the bottom displaying 'MAC-Address: 00-05-26-70-0D-A6 / Physical Address: 1.1.2'. Above the display are six indicator lights labeled A through F. Below the display are two rows of buttons: 'Groups' with two light icons and 'ECG States' with a grid of 16 buttons (labeled 1-16) and a '12' button with a checkmark. To the right of the 'ECG States' grid are three more buttons labeled G, H, and I. The '12' button is highlighted with a red box.

A Update
This function updates the electronic ballast assignments displayed. In particular, it should particularly be used if additional assignment changes have been performed manually on the device or using the software tool.

This button starts new installation of the connected DALI segment.

Note

If a new installation is started, any pre-existing configuration of the DALI segment will be deleted.

This button starts reinstallation within the DALI segment. Any no longer existing ballasts will be deleted and new devices will be added.

Any procedures which have already been started will be cancelled by this function.

All electronic ballasts/lamps of the DALI segment can be switched on or off together via a DALI broadcast telegram using this function.

This button is used to switch to the scene setting page.

Generally the position (Long Address) of the electronic ballasts within the DALI segment is randomly. During the new installation the addresses will be detected and assigned automatically to a short address 0..63. The electronic ballasts are added into the list randomly. If there is a need to set an electronic ballast in a special position within the list (special short address) you can swap the positions with this function. Therefore click on the Swap button and afterwards the two delectronic ballasts to be swapped.

Below the header are the fields with which the electronic ballasts or group assignment can be identified. To identify the electronic ballasts, all luminaires should first be set to a defined value (e.g. off) via broadcast. This button can be used to switch on or off electronic ballasts individually by mouse click, which simplifies identification of the electronic ballasts which are arranged in random order.

This button can be used to assign electronic ballasts individually to groups following identification.

Besides identifying and assigning groups, the scene values and scene assignments can also be set on another web page. From the commissioning page, the scene page is reached by clicking on the Scenes button.

The screenshot shows a web browser interface. The address bar displays 'https://192.168.1.1/'. The main content area features a 'Groups' table with 8 rows and 2 columns. The first column contains icons numbered 1 through 8, and the second column contains percentage values. Below the 'Groups' table is a 'Scenes' table with 8 rows and 2 columns. The first column contains icons numbered 1 through 8, and the second column contains numerical values. Five callouts are present: 'A' points to the first group icon (1), 'B' points to the '1' icon in the 'Groups' table, 'C' points to the '1' icon in the 'Scenes' table, and 'D' points to the '1' icon in the 'Scenes' table.

Groups		Scenes	
1 100%	9 0%	1 9	
2 100%	10 0%	2 10	
3 0%	11 0%	3 11	
4 0%	12 0%	4 12	
5 0%	13 _	5 13	
6 0%	14 _	6 14	
7 0%	15 _	7 15	
8 0%	16 _	8 16	

MAC-Address: 00-05-26-70-00-A6 / Physical Address: 1.1.2

To set a scene, first select it on the right side. The selected scene (if present) will be called up in the DALI segment. The set light values will be displayed in the corresponding group windows. The light values can be individually adjusted using the buttons.

The light value can be modified in groups by a short (switch) or long (dim) click on the corresponding group field.

The modified value in the selected scene will be saved.

This button regulates the assignment of groups to the individual scenes.

Go back to the last page.

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This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations. As standards, specifications and designs develop from time to time, always ask for confirmation of the information given in this publication.